

REMARKS

In the Final Office Action dated June 21, 2006 the previously made restriction requirement was withdrawn. Accordingly claims drawn to additives containing calcium and magnesium ions, as well as claims to additives containing other polyvalent ions continue to be presented for consideration.

Reorganization of the claims for re-examination

For the purpose of simplifying the presently requested Continuing Examination, the applicant, acting through the undersigned attorney, has canceled the original claims and submitted formal "new" Claims 21-48. To further simplify the task of examination, Claims 21-34 are drawn to the "calcium chloride, magnesium chloride and calcium oxide" subject matter. Claims 35 – 48 are drawn to the subject matter of "polyvalent ions," now recited as Fe^{++} , Fe^{+++} , Cu^{++} and Ba^{++} .

The presently submitted claims represent editorial changes made for the purpose of placing the claims in better form, and also amendments of substantive subject matter which is fully supported by the original disclosure and avoids all art cited during the prosecution of this application.

The rejection over prior art has been overcome or is inapplicable to the present claims

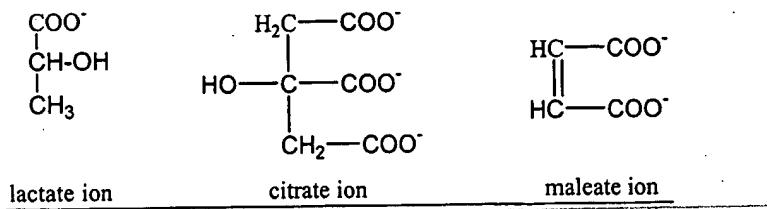
To show the *prima facie* allowability of all of the currently presented claims the applicant, acting through the undersigned attorney, discusses all pertinent references cited for anticipation or obviousness during the prosecution of this application, and shows that the present claims obviate all rejections based on these references.

Claims were rejected in the Office Action dated September 21, 2005 over published United States patent application US 2004/0058054 A1 (*Elder et al.*). This reference discloses

reduction of acrylamide formation in thermally processed foods by adding calcium lactate, calcium citrate or calcium maleate to the food before thermal processing. The application also elaborates on the theory that acrylamide formation normally occurs because of decomposition or reaction of the amino acid asparagine in the food. Thus, the adding of calcium lactate, calcium citrate or calcium maleate to the food minimizes decomposition of asparagines to acrylamide during a thermal process.

Calcium lactate is only sparingly soluble in water. According to the enclosed *Handbook of Chemistry and Physics* 51st Edition (1970 – 1971) pp. B-77, 78, calcium lactate's solubility is 3.1g in 100 cc water. According to the same source, calcium citrate is even less soluble (0.85g in 100 cc of water) and calcium maleate has a solubility of 2.89g in 100 cc of water. Given the fact that in doughs, baked goods and the like the water content is relatively modest, it is unlikely that calcium lactate, calcium citrate or calcium maleate contribute a significant amount of calcium ions (Ca⁺⁺) to the result described in the *Elder et al.* reference.

Even more importantly, the lactates, citrates and maleates or organic salts, each have the respective structural formulas shown below.



Because the *Elder et al.* reference teaches that the decomposition or reaction of asparagines results in acrylamide formation and that addition of these organic salts minimizes such decomposition or reaction, a person of ordinary skill in the art is likely to conclude that it is the

“organic” portion of these molecules which react or interact with asparagines and minimize the formation of acrylamide.

The present Claims 21-34 do not encompass the use of calcium lactate, citrate or maleate. Therefore any rejection for anticipation by *Elder et al.* is clearly avoided. For the reasons explained above a person of ordinary skill would not find it obvious to use calcium chloride, magnesium chloride or calcium oxide to minimize the formation of acrylamide. For this reason the subject matter of Claims 21 – 34 is not obvious over the *Elder et al.* reference or over any other reference of record.

“To serve as an anticipation when the reference is silent about the asserted inherent characteristic, such gap in the reference may be filled with recourse to extrinsic evidence. Such evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.”

Continental Can Company USA, Inc. v. Monsanto Co., 948 F.2d 1264, 20 USPQ2d 1746 (Fed. Cir. 1991).

United States Patent No. 6,436,458 (*Kuechle et al.*) was cited in the Office Action of September 21, 2005. Applicant respectfully submits that this reference actually teaches away from the present claims. First, the main concern of *Kuechle et al.* is to provide a scoopable dough. The reference is not at all concerned and does not describe elimination or minimization of acrylamide formation during the cooking, baking or frying process.

Even more importantly, the reference contains several passages indicating that the presence of iron ions and other ions are to be avoided in the scoopable dough. Column 2, lines 6-9 of the reference state that the dough can include “flour enrichment with all reduced iron, a binder of metal ions, an organic acid and the like.” (underlining added). Column 4, lines 5-6

state that the scoopable dough "can include flour enrichments having iron that is substantially all reduced" (underlining added).

Column 10, lines 13 through 21 state:

"A scoopable dough of the invention can also include a binder of metal ions. Some metal ions can help catalyze enzymatic reactions that can result in dough graying. Thus, a binder of metal ions can be effective against a scoopable dough of the invention losing its natural color. Examples of binders of metal ions include metal chelators and organic acids. A metal chelator can include, for example, ethylene diaminotetracetate (EDTA)."
(underlining added).

The term "all reduced iron" necessarily refers to metallic iron and not to iron ions. As is well known in the art "a binder of metal ion" is a chemical that removes the metal ion from effectiveness as an ion, by chelating it. EDTA is a very well known chelator of many kinds of metal ions, including that of iron ions and aluminum ions. Therefore, even if some of the "all reduced iron" in the *Kuechle et al.* disclosure were still in the ionic stage (two valent ferrous instead of three valent ferric), such ion would be removed by chelation. For all these reasons, the *Kuechle et al.* reference teaches away from the subject matter of the present Claims 35-48 and neither anticipates these claims nor renders them obvious.

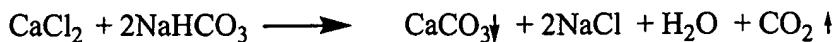
United States Patent No. 5,556,655 (*Vadlamani et al.*) was cited in the Final Office Action of March 7, 2006. This reference is not concerned with eliminating or reducing the formation of acrylamide in foods which are subjected to thermal processes, such as cooking, baking or frying. Rather, its purpose is to reduce darkening of the food product during storage. The majority of examples of this reference are directed to a gluten product. The salts or ions added to the raw product (before it may be heated such as baked) were zinc and aluminum. The use of zinc and/or aluminum ions is no longer recited in the presently amended claims. Because

the reference is entirely silent about reducing acrylamide formation, a person of ordinary skill in the art would receive no hint or suggestion that the use of Fe^{++} , Fe^{+++} , Cu^{++} and/or Ba^{++} ions, as stated in Claims 35 – 48, will reduce formation of acrylamides.

United States Patent No. 5,882,712 (*Wu*), cited in the Office Action of June 21, 2006, in spite of its appearance at first glance, does not disclose the use or presence of *Ca ions* originating from $CaCl_2$, CaO or from other source of calcium, or of magnesium ions originating from $MgCl_2$ or from other source of magnesium while the therein disclosed dough or like batter product is baked or otherwise subjected to heat. On the contrary, this reference teaches to one of ordinary skill in the art that calcium or magnesium is no longer present in an ionic form, nor as $CaCl_2$ or $MgCl_2$ after the leavening process has been completed and the dough or batter is baked. The reasons are as follows.

The *Wu* reference discloses the use of a leavening composition for leavening a dough or batter before the dough or batter is baked or otherwise subjected to heat. The leavening composition of the reference includes a “leavening acid” and a “basic compound” which when reacted with the acid generates carbon dioxide. Carbon dioxide (CO_2) is a gas that forms bubbles in the dough and therefore causes it to rise. This is well known in the art. It is significant that the reference refers to $CaCl_2$ or $MgCl_2$ as the “acid.” In the ensuing discussion $CaCl_2$ will be used as an example although the discussion is equally applicable to $MgCl_2$.

As a person of skill in the art will readily understand that carbon dioxide (CO_2) gas forms in the reaction between $CaCl_2$ and the carbonate containing “basic” compound (such as sodium bicarbonate, $NaHCO_3$) according to the following chemical equation.



As is well known in the art CO_2 is the gas that causes leavening of the batter, and calcium carbonate (CaCO_3) is water insoluble (a substance that actually forms many mountain chains on the Earth). Water insoluble calcium carbonate does not contribute calcium ions (Ca^{++}) to the batter like water soluble calcium chloride (CaCl_2) does. The same type of chemical equation and discussion is applicable to water soluble magnesium chloride (MgCl_2) and water insoluble MgCO_3 .

Because CaCl_2 and MgCl_2 is initially added to the batter or dough to leaven together with a basic compound (such as NaHCO_3) and because, as shown above, calcium or magnesium ions are no longer present in substantive amounts in the batter or dough after it is leavened and while it is baked, the added calcium or magnesium of this reference does not inherently reduce acrylamide formation. Nor would a person of ordinary skill in the art find it obvious to omit the "basic compound" (such as NaHCO_3) from the leavening substance added to the dough for the purpose of reducing acrylamide formation while the dough is baked.

The presently submitted independent Claims 21, 32 and 33 clearly set forth that the additive contributes calcium or magnesium ions to the dough or batter to be present while the dough or batter is cooked under heat. Therefore, the subject matter of Claims 21 – 34 clearly avoids the *Wu* reference.

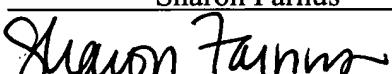
United States Patent No. 4,272,554 (*Schroeder et al.*) cited in the Final Office Action of June 21, 2006 discloses preparing blister-inhibited potato chips. The disclosed process involves the step of applying small amount of calcium (a calcium chloride or other calcium salt) to the

surface of the chips by "spraying, dipping or the like." Present claims 21-34 are not drawn to the making of fried or baked potato chips. This disclosure does not suggest to one of ordinary skill in the art that formation of acrylamide is reduced when calcium ions are added to a dough or batter. Therefore, the present claims clearly avoid the *Schroeder et al.* reference.

In light of the foregoing, all claims are free of the prior art and are in *prima facie* allowable condition. Their early allowance is respectfully solicited.

In the event the Examiner is of the opinion that a telephone conference with the undersigned attorney would materially facilitate the final disposition of this case, she is respectfully requested to telephone the undersigned attorney at the below listed telephone number.

I hereby certify that this correspondence is being deposited with the U.S. Postal Service as first class mail in an envelope addressed to: Commissioner for Patent, PO Box 1450, Alexandria, VA 22313-1450 on August 31, 2006.

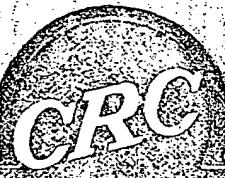
By: Sharon Farnus

Signature

Dated: August 31, 2006

Very truly yours,
SNELL & WILMER L.L.P.



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HANDBOOK
of
CHEMISTRY
and
PHYSICS

51ST

EDITION
1970-1971

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10/734,766
Yoshi Tomoda et al.
Attachment to Response
Page 1 of 3

PHYSICAL CONSTANTS OF INORGANIC COMPOUNDS (Continued)

No.	Name	Synonyms and Formulas	Mol. wt.	Crystalline form, properties and index of refraction	Density or spec. gravity	Melting point, °C	Boiling point, °C	Solubility, in grams per 100 cc				
								Cold water	Hot water	Other solvents		
c129	Calcium iodide, hexahydrate	CaI ₆ ·6H ₂ O	401.98	yel, hex need.	2.55	d 42	160	757 ^o	1680 ^{oo}	s a, sl, acet	c174	
c130	iron (III) aluminate	Calcium (tetra-) aluminoferrite, nat. celite.	485.97	brn, rhomb, 1.98, 2.05, 2.08 all for λ	3.77	1418 ^o	3				c175	
c131	isobutyrate	4CaO·Fe ₂ O ₃ ·Al ₂ O ₃ ·Ca(C ₃ H ₆ O ₂) ₂ ·5H ₂ O	304.35	col powd.		-3H ₂ O, 100	20	sl a			c176	
c132	lactate	Ca(C ₃ H ₆ O ₂) ₂ ·5H ₂ O	308.30	wh need, effl.		182-183	3.1 ^o	7.9 ^{oo}	0.055 ^{oo}	0.059 ^{oo} 1.72 ^o al	c177	
c133	laurate	Ca(C ₁₀ H ₂₀ O ₂) ₂ ·H ₂ O	456.73	wh need, effl.							c178	
c134	linoleate	Ca(C ₁₈ H ₃₄ O ₂) ₂ ·H ₂ O	598.97	wh amorph powd.							c179	
c135	magnesium carbonate	Nat. dolomite.	184.41	col, trig, 1.6817.	2.872	d 730-760	0.032 ^{oo}				c180	
c136	magnesium metasilicate	CaCO ₃ ·MgCO ₃ Nat. diopside.	216.56	col, monocl.	3.275	1391	i	i	i	HCl	c181	
c137	magnesium orthosilicate	3CaO·Mg·SiO ₃	328.72	col to ps grn, monocl, 1.708, 1.711, 1.718	3.150						c182	
c138	dl-malate	CaC ₄ H ₆ O ₄ ·3H ₂ O	226.20	col, rhomb, 1.545, 1.555, 1.575			0.321 ^o	0.451 ^{oo}	i al		c183	
c139	l-malate	CaC ₄ H ₆ O ₄ ·2H ₂ O	208.18	col.			0.812 ^o	1.224 ^{oo}	s al		c184	
c140	malate, dihydrogen	Ca(HC ₄ H ₅ O ₄) ₂ ·6H ₂ O	414.33	rhomb, or wh cr powd, 1.493, 1.507, 1.545			sl a				c185	
c141	maleate	CaC ₄ H ₆ O ₄ ·H ₂ O	172.15	col rhomb, 1.495, 1.575, 1.640			2.89 ^{oo}	3.21 ^{oo}			c186	
c142	malonate	CaC ₃ H ₄ O ₄ ·4H ₂ O	214.19				0.44 ^o	0.72 ^{oo}			c187	
c143	permanganate	Ca(MnO ₄) ₂ ·5H ₂ O	368.03	purp cr.	2.4	d	331 ^o	338 ^o	s NH ₄ OH		c188	
c144	α-methylbutyrate	Calvium ethylmethylacetate. Ca(C ₃ H ₆ O ₂) ₂	242.34				24.24 ^o	25.65 ^{oo}			c189	
c145	molybdate	Nat. pavellone. CaMoO ₄	200.01	col, tetr, 1.967, 1.978	4.38-4.53		i	d	s a i al, eth		c190	
c146	nitrate	Ca(NO ₃) ₂	164.09	col, cub, hyg	2.504 ^{oo}	561	121.2 ^o	376 ^{oo}	14 ^o al; s MeOH, liq NH ₃ , acet; i eth		c191	
c147	nitrate, tetrahydrate	Ca(NO ₃) ₂ ·4H ₂ O	236.15	col, monocl, deliq, α 1.896, β 1.82	α 42.7, β 39.7	d 132	266 ^o	660 ^{oo}	660 ^{oo}		c192	
c148	nitrate, trihydrate	Ca(NO ₃) ₂ ·3H ₂ O	218.14	col, tricl.	51.1		d	d	s dil a; d abs al		c193	
c149	nitride	Ca ₃ N ₂	148.25	brn cr, hex	2.63 ^o	1195	45.9 ^o	89.6 ^o	sl a		c194	
c150	nitrite	Ca(NO ₂) ₂ ·H ₂ O	150.11	col-yelsh, hex, deliq	2.23 ^o	-H ₂ O, 100					c195	
c151	nitrite, tetrahydrate	Ca(NO ₂) ₂ ·4H ₂ O	204.15	col cr, tetr.	1.674 ^o	-2H ₂ O, 44	74.9 ^o	106 ^o	s al		c196	
c152	oleate	Ca(C ₁₈ H ₃₄ O ₂) ₂	603.01	wh wax-like cr	83-84		0.04 ^o	0.03 ^{oo}	al s eth		c197	
c153	oxalate	CaC ₂ O ₄	128.10	col, cub.	2.2 ^o	d	0.00067 ^o	0.0014 ^{oo}	s a; i ac a		c198	
c154	oxalate, hydrate	CaC ₂ O ₄ ·H ₂ O	146.12	col.	2.2	-H ₂ O, 200	i	i	s a; i ac a		c199	
c155	oxide	Lime, calcia. CaO	56.08	col, cub, 1.838	3.25-3.38	2580	2850	0.131 ^o d	0.07 ^{oo} d	s a		c200
c156	oxide, per-	CaO ₂	72.08	wh, tetr, 1.895	2.92 ^o	d 275	sl s			s a		c201
c157	oxide, per-octahydrate	CaO ₂ ·8H ₂ O	216.20	wh, tetr, pearly	1.70	-8H ₂ O, 200	d 275 expl	sl s	d	s a, NH ₃ salt; i al, eth		c202
c158	palmitate	Ca(C ₁₆ H ₃₂ O ₂) ₂	550.93	wh or yelsh, wh fatty powd			0.003 ^{oo}		v al s al; 0.008 ^{oo} eth		c203	
c159	1-phenol-4-sulfonate(p-)	Ca[CaH ₄ (OH)SO ₃] ₂ ·H ₂ O	404.43	wh to pinkish powd			sl s		s al		c204	
c160	phenoxide	Ca(O ₂ C ₆ H ₅) ₂	226.29	redish powd.			sl s		sl s al		c205	
c161	hypophosphate	Ca ₃ P ₂ O ₇ ·2H ₂ O	274.13	gel.			i		s HCl		c206	
c162	metaphosphate	Ca(PO ₃) ₂	198.02	col, 1.588, 1.595.	2.82	975	i	i	i a		c207	
c163	orthophosphate, di-(sec)	Nat. brushite. CaHPO ₄ ·2H ₂ O	172.09	wh, tricl, 1.5576, 2.306 ^{oo}	-H ₂ O, 109		0.0316 ^o	0.075 ^{oo}	i al, s a		c208	
c164	orthophosphate, mono-(prim.)	Ca(H ₂ PO ₄) ₂ ·H ₂ O	252.07	col, tricl, deliq, 1.5292, 1.5176, 1.4392	2.220 ^{oo}	-H ₂ O, 109	d 203	1.8 ^o	d	s a		c209
c165	orthophosphate, tri-(tert.)	Nat. whitlockite. Ca ₃ (PO ₄) ₂	310.18	wh amorph powd.	3.14	1670	0.002 ^o	d	i al; s a		c210	
c166	pyrophosphate	Ca ₃ Pr ₂ O ₇	254.10	col, biaz, 1.585, 1.604	3.09	1230	i		s a		c211	
c167	pyrophosphate, pentahydrate	Ca ₃ Pr ₂ O ₇ ·5H ₂ O	344.18	col, monocl, 1.539, 1.545, 1.551	2.25		sl s		sl s; i NH ₄ Cl		c212	
c168	phosphide	Ca ₃ P ₂	182.19	gray lumps.	2.51	ca 1600	d ev PH ₂		s a; i al, eth, br		c213	
c169	hypophosphate	Ca(H ₂ PO ₄) ₂	170.06	wh-gray, monocl	d		15.4 ^o	12.5 ^{oo}	i al		c214	
c170	orthophosphite, di-	2Ca ₃ HPO ₄ ·3H ₂ O	294.17	red-br cr.	5.71	d	sl s	d	s a; i NH ₄ Cl		c215	
c171	orthoplumbate	Ca ₃ PbO ₄	351.35				i	d	s a		c216	
c172	propionate	Ca(C ₃ H ₆ O ₂) ₂ ·H ₂ O	204.24	col, monocl tabl.		50, -10H ₂ O	49 ^o	55.8 ^{oo}	i al		c217	
c173	l-quinate	Ca(C ₆ H ₅ O ₂) ₂ ·10H ₂ O	602.56	rhomb leaf.		120	16 ^o		i al		c218	

PHYSICAL CONSTANTS OF INORGANIC COMPOUNDS (Continued)

100 cc
solvents

No.	Name	Synonyms and Formulae	Mol. wt.	Crystalline form, properties and index of refraction	Density or spec. gravity	Melting point, °C	Boiling point, °C	Solubility, in grams per 100 cc		
								Cold water	Hot water	Other solvents
c87	calcium butyrate	Ca(C ₃ H ₆ O ₂) ₂ ·3H ₂ O	268.32	col cr.	2.22	stab 25-447	s 2300	s d	s d	
c88	carbide	CaC ₂	64.10	col, tetr. 1.75	2.22	stab 25-447	d 825	0.00153 ²⁵	0.00190 ²⁵	s a, NH ₄ Cl
c89	carbonate	Nat. aragonite. CaCO ₃	100.09	col. rhomb, 1.530, 1.681, 1.685	2.930	tr to calcite 520	1339 ¹⁰⁰	d 898.6	0.0014 ²⁵	0.0018 ²⁵
c90	carbonate	Nat. calcite. CaCO ₃	100.09	col. rhomb or hex, 1.6583, 1.4864	2.710 ²⁵	1339 ¹⁰⁰	d 898.6	0.0014 ²⁵	0.0018 ²⁵	s a, NH ₄ Cl
c91	carbonate, hexahydrate	CaCO ₃ ·6H ₂ O	208.18	col, monocl, 1.460, 1.535, 1.545	1.771 ⁰					
c92	chlorate	Ca(ClO ₃) ₂	206.99	wh cr, hyg.	340±10 (-some O)			s	s	s al, acet
c93	chlorate, dihydrate	Ca(ClO ₃) ₂ ·2H ₂ O	243.01	wh-yellow, rhomb, or monocl, deliq	2.711 -H ₂ O, 100			177.7 ²⁵	v s	s al, acet
c94	perchlorate	(CaClO ₄) ₂	238.98	col cr.	2.631	d 270		188.6 ²⁵	v s	166.2 ²⁵ al; 237.4 MeOH
c95	chloride	CaCl ₂	110.99	col, cub, deliq 1.52	2.15 ²⁵	772	>1600	74.5 ²⁰	159 ¹⁰⁰	s al, acet, ace a
c96	chloride aluminate	3CaO·Al ₂ O ₃ ·CaCl ₂ ·10H ₂ O	561.33	col, monocl or hex, 1.530, 1.535	1.892 ²⁵	-H ₂ O, 105	-8H ₂ O, 350	s l s	d	s a
c97	chloride, dihydrate	CaCl ₂ ·2H ₂ O	147.02	col cr.	0.835			97.7 ²⁵	326 ²⁰	50 ²⁰ al
c98	chloride, hexahydrate	CaCl ₂ ·6H ₂ O	219.08	col, trig, deliq. 1.417, 1.393	1.71 ²⁵	29.92	-4H ₂ O, 30, 279 ²⁵ -6H ₂ O, 200	536 ²⁵	s al	
c99	chloride, monohydrate	CaCl ₂ ·H ₂ O	129.00	col cr, deliq.		260		76.8 ²⁵	249 ¹⁰⁰	s al; i acet
c100	chloride fluoride orthophosphate	3Ca ₂ (PO ₄) ₂ ·CaCl ₂	1025.08	col cr. 1.634, 1.631	3.14	1270		v s l s		
c101	chlorite	Ca(ClO ₂) ₂	171.98	wh, cub.	2.71			d	d	i al
c102	hypochlorite	Ca(ClO) ₂	142.98	wh powd or flat pl. 1.545, 1.69	2.35	d 100		s	d	i al
c103	chlorite, basic	Ca(ClO) ₂ ·2Ca(OH) ₂	257.16	wh, hex, 1.51, 1.585	2.10			s l s solns with 5-6 % avail Cl	d	d a
c104	hypochlorite, basic	Bleaching powder, chlorinated lime.	comp varies	wh powd strong Cl odor		d		d evn Cl		d a
c105	hypochlorite, trihydrate	Ca(ClO) ₂ ·CaCl ₂ ·xCa(OH) ₂ ·xH ₂ O	197.03	tetr pl. 1.535, 1.63	2.1	-3H ₂ O, 60				
c106	chromate	CaCrO ₄ ·2H ₂ O	192.09	yel. monocl pr.		-2H ₂ O, 200		16.3 ²⁰	18.2 ²⁵	s a, al
c107	chromite	CaCrO ₄	208.07	ol grn, cub need.	4.8 ²⁵	2090		i	i	i a; s fus K ₂ CO ₃
c108	cinnamate	Ca(C ₆ H ₅ O ₂) ₂ ·3H ₂ O	388.44	col cr.				0.22 ²⁵	1.34 ¹⁰⁰	
c109	citrate	Ca(C ₆ H ₅ O ₂) ₂ ·4H ₂ O	570.51	wh need.		-4H ₂ O, 120		0.85 ²⁵	0.96 ²⁵	0.0065 ²⁵ al
c110	cyanamide	CaCN ₂	80.10	col, hex, rhbdr.		1300 subl		d evl NH ₃	d	
c111	cyanide	Ca(CN) ₂	92.12	wh powd.		>1150		d	d	
c112	cyanoplatinite	CaPt(CN) ₄ ·5H ₂ O	429.31	yel-grn fluoresc.		-5H ₂ O, 100		s		
c113	ferricyanide	Ca ₃ [Fe(CN) ₆] ₂ ·12H ₂ O	760.42	red need, deliq.				v s	v s	
c114	ferrite, mono-	CaO·Fe ₂ O ₃	215.77	dk redsh r, rhomb.	5.08	1250		i	i	v s l s a
c115	ferrocyanide	Ca ₂ Fe(CN) ₆ ·11 or 12H ₂ O	490.28	yel tricl. 1.570, 1.582, 1.596	1.68	d	86.8 ²⁵	115 ²⁵	i al	
c116	fluosilicate	CaSiF ₆	182.16	col, tetr.	2.66 ²⁵					s al, HF, HCl
c117	fluoride	Nat. fluorite. CaF ₂	78.08	col, cub luminisc.	3.180	1360	ca 2500	0.0016 ²⁵	0.0017 ²⁵	s NH ₄ salts; s l s a; i acet
c118	fluosilicate, dihydrate	CaSiF ₆ ·2H ₂ O	218.19	col, tetr.	2.254			s l s d		s HCl, HF; i al
c119	formate	Ca(CHO) ₂	130.12	col, rhomb, 1.510, 1.514, 1.578	2.015	d	16.2 ²⁵	18.4 ¹⁰⁰	i al	
c120	fumarate	CaC ₄ H ₄ O ₄ ·3H ₂ O	208.18	col, rhomb.			2.11 ²⁵			
c121	d-gluconate	Ca(C ₆ H ₁₀ O ₆) ₂ ·H ₂ O	448.40	wh cr powd, need.		-H ₂ O, 120	3.3 ²⁵			v s l s al
c122	glycerophosphate	CaC ₆ H ₁₀ O ₆ ·PO ₄	210.16	wh cr powd, hyg.		d 170	2 ²⁵	s l s	i al	
c123	hydride	CaH ₂	42.10	wh, rhomb cr.	1.9	816 (in H ₂)	d ca 600	d H ₂ +	d	d a
c124	hydroxide	Ca(OH) ₂	74.09	col, hex, 1.574, 1.545	2.24	-H ₂ O, 580	d	0.185 ²⁵	0.077 ¹⁰⁰	s NH ₄ salts, a; i al
c125	hyponitrite	CaN ₂ O ₄ ·4H ₂ O	172.15	wh cr.	1.834	d 320				dil a
c126	iodate	Nat. lautarite. Ca(IO ₃) ₂	389.89	col, monocl.	4.519 ²⁵	d 540		0.20 ²⁵	0.67 ²⁵	s HNO ₃ ; i al
c127	iodate, hexahydrate	Ca(IO ₃) ₂ ·6H ₂ O	497.98	col, rhomb.		d 35		0.13 ²⁵	1.22 ¹⁰⁰	s HNO ₃
c128	iodide	CaI ₂	293.89	yelsh-wh, hex, deliq.	3.956 ²⁵	740	ca 1100	209 ²⁵	426 ¹⁰⁰	126 ²⁵ MeOH; s al, acet, a

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